



MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: Dot 3 – Premium Brake Fluid

Product No.: H-130 (21-b)

Manufacturer Name:
Federal-Mogul World Headquarters
26555 Northwestern Highway
Southfield, Michigan 48033

Emergency Telephone:
24hr EP (INFOTRAC): 1-800-535-5053
International: (001) 352-323-3500

Non-emergency Telephone:
1-248-354-9844

Intended Use: Brake Fluid

Contact Person:
MSDS Request (voicemail) 1-248-354-9844

2 HAZARDS IDENTIFICATION

Emergency Overview

Physical State: Liquid

Color: Light amber

Odor: Mild

WARNING!

Causes severe skin and eye irritation. Harmful if swallowed. May be harmful if absorbed through skin. May cause respiratory tract irritation. May cause damage to the kidneys. May cause central nervous system effects. Possible reproductive hazard - contains material that may cause adverse reproductive effects.

Potential Health Effects

Inhalation: May cause respiratory tract irritation. May cause central nervous system effects.

Eye Contact: Causes severe eye irritation. Causes redness and pain.

Skin Contact: Causes severe skin irritation. May be harmful if absorbed through skin. Defats the skin. A few cases of sensitization have been reported. The product contains components which may penetrate skin.

Ingestion: Harmful if swallowed. May cause damage to the kidneys. May cause central nervous system effects. May damage the unborn child if large amounts are swallowed.

Chronic Health Effects: May cause central nervous system effects. May cause damage to the liver and kidneys. Possible reproductive hazard - contains material that may cause adverse reproductive effects.

Target Organ(s): | Eye | Skin | Respiratory system | Central nervous system | Kidney
| Liver | Reproductive system |

OSHA Regulatory Status: This product is hazardous according to OSHA 29CFR 1910.1200.

Environment: The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

3 COMPOSITION / INFORMATION ON INGREDIENTS

General Information: The product is a mixture.

Chemical Name	CAS-No.	Concentration*
†Triethylene glycol monobutyl ether	143-22-6	25 - 29%
†Diethylene glycol	111-46-6	16 - 20%
†Polyethylene glycol hexylether	112-59-4	11 - 15%
†2-(2-butoxyethoxy)ethanol	112-34-5	10 - 14%
†Triethylene glycol methyl ether	112-35-6	7 - 11%
†Polyethylene glycol	25322-68-3	4 - 8%
†Diethylene glycol monoethyl ether	111-90-0	3 - 6%
†Triethylene glycol	112-27-6	1 - 5%
†Triethylene glycol ethyl ether	112-50-5	2 - 6%
2-(2-propoxyethoxy)ethanol	6881-94-3	2 - 6%
†2-(2-methoxyethoxy)ethanol	111-77-3	<= 4%
†Ethylene glycol	107-21-1	<= 4%

* All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

† This chemical is hazardous according to OSHA/WHMIS criteria.

4 FIRST AID MEASURES

Inhalation: Move into fresh air and keep at rest.

Eye Contact: Flush thoroughly with water for at least 15 minutes. Get immediate medical assistance. If medical assistance is not immediately available, flush an additional 15 minutes. Get medical attention immediately. Continue to rinse.

Skin Contact: Remove contaminated clothes and rinse skin thoroughly with water for at least 15 minutes. Get medical attention promptly if symptoms persist or occur after washing.

Ingestion: Rinse mouth thoroughly with water and give large amounts of milk or water, if person is conscious. Only induce vomiting at the instruction of medical personnel. Get medical attention immediately.

Note to Physician: Treat symptomatically.

5 FIRE-FIGHTING MEASURES

Extinguishing Media: Extinguish with foam, carbon dioxide, dry powder or water fog.

Unsuitable Extinguishing Media: None.

Special Fire Fighting Procedures: Use standard firefighting procedures and consider the hazards of other involved materials.

Unusual Fire & Explosion Hazards: During fire, gases hazardous to health may be formed.

Hazardous Combustion Products: Carbon Dioxide, Carbon Monoxide

Protective Measures: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Flammability Class: NFPA Rating Fire = 1. Materials that must be preheated before ignition can occur.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid inhalation of vapors and contact with skin and eyes. Wear suitable protective clothing and gloves. See Section 8 of the MSDS for Personal Protective Equipment.

Spill Cleanup Methods: Absorb spillage with suitable absorbent material. Collect in containers and seal securely. Containers with collected spillage must be properly labeled with correct contents and hazard symbol. For waste disposal, see section 13 of the MSDS.

Environmental Precautions: Avoid discharge into drains, water courses or onto the ground.

Notification Procedures: Inform authorities if large amounts are involved.

7 HANDLING AND STORAGE

Handling: Pregnant women should not work with the product, if there is the least risk of exposure. Local exhaust is recommended. Avoid inhalation of vapors and contact with skin and eyes. Wear necessary protective equipment. Observe good industrial hygiene practices.

Storage: Store in a cool and well-ventilated place. Keep containers tightly closed. Store away from incompatible materials.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

Chemical Name	Source	Type	Exposure Limits	Notes
Diethylene glycol	US. AIHA WEEL	TWA	10 mg/m ³	
Diethylene glycol monoethyl ether	US. AIHA WEEL	TWA	140 mg/m ³ 25 ppm	
Ethylene glycol (Aerosol.)	US. ACGIH TLV	Ceiling	100 mg/m ³	
Polyethylene glycol (Particulate.)	US. AIHA WEEL	TWA	10 mg/m ³	
Triethylene glycol (Particulate.)	US. AIHA WEEL	TWA	10 mg/m ³	

Consult Canadian Provincial Regulations and/or Mexican Regulations on exposure limits, if applicable.

Engineering Controls: Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors. Provide easy access to water supply and eye wash facilities.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 29CFR 1910.134. Use a NIOSH/MSHA approved air purifying respirator as needed to control exposure. Consult with respirator manufacturer to determine respirator selection, use, and limitations. Use positive pressure air supplied respirator for uncontrolled releases or when air purifying respirator limitations may be exceeded. Follow respirator protection program requirements (OSHA 1910.134 and ANSI Z88.2) for all respirator use.

Eye Protection: Wear approved safety goggles.

Hand Protection: Wear protective gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.

Skin Protection: Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.

Environmental Exposure Controls: Environmental manager must be informed of all major spillages.

9**PHYSICAL AND CHEMICAL PROPERTIES**

Color: Light amber

Odor: Mild

Odor Threshold: No data available.

Physical State: Liquid

pH: 9.5 - 10.5

Melting Point: No data available.

Freezing Point: No data available.

Boiling Point: >205°C (401°F)

Flash Point: No data available.

Evaporation Rate: No data available.

Flammability Limit - Upper (%): No data available.

Flammability Limit - Lower (%): No data available.

Vapor Pressure: No data available.

Vapor Density (Air=1): No data available.

Specific Gravity: 1.028 - 1.036 (20°C)

Solubility in Water: Soluble

Solubility (Other): No data available.

Partition Coefficient (n-Octanol/water): No data available.

Autoignition Temperature: No data available.

Decomposition Temperature: No data available.

Volatile Organic Compounds (VOC): No data available.

Viscosity: No data available.

10	STABILITY AND REACTIVITY
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Stability: This product is stable under expected conditions of use.

Conditions to Avoid: Avoid exposure to high temperatures or direct sunlight.

Incompatible Materials: Strong oxidizing agents. Strong bases.

Hazardous Decomposition Products:

At Elevated Temperatures:	Carbon Dioxide, Carbon Monoxide
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Possibility of Hazardous Reactions: Will not occur.

11	TOXICOLOGICAL INFORMATION
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Specified Substance(s)

Acute Toxicity:

Chemical Name	Test Results
2-(2-butoxyethoxy)ethanol	Dermal LD50 (Rabbit): 2700 mg/kg
2-(2-butoxyethoxy)ethanol	Oral LD50 (Rat): 5600 mg/kg
Diethylene glycol monoethyl ether	Inhalation LC50 (4 hour(s), Rat): > 5240 mg/m ³
Diethylene glycol monoethyl ether	Oral LD50 (Rat): 7500 mg/kg
2-(2-methoxyethoxy)ethanol	Dermal LD50 (Rabbit): 2.5 ml/kg
2-(2-methoxyethoxy)ethanol	Oral LD50 (Rat): 4 ml/kg
Polyethylene glycol hexylether	Dermal LD50 (Rabbit): 1425 mg/kg
Polyethylene glycol hexylether	Oral LD50 (Rat): 2400 mg/kg
Diethylene glycol	Dermal LD50 (Rabbit): 11890 mg/kg
Diethylene glycol	Oral LD50 (Rat): 12565 mg/kg
Ethylene glycol	Dermal LD50 (Rabbit): 9.3 mg/kg
Ethylene glycol	Oral LD50 (Rat): 4700 mg/kg
Triethylene glycol monobutyl ether	Dermal LD50 (Rabbit): 3.57 ml/kg
Triethylene glycol monobutyl ether	Oral LD50 (Rat): 5300 mg/kg
Triethylene glycol	Dermal LD50 (Rabbit): > 20 ml/kg
Triethylene glycol	Oral LD50 (Rat): 17000 mg/kg
Triethylene glycol ethyl ether	Dermal LD50 (Rabbit): 8000 mg/kg
Triethylene glycol ethyl ether	Oral LD50 (Rat): 7750 mg/kg
Triethylene glycol methyl ether	Dermal LD50 (Rabbit): 7100 mg/kg
Triethylene glycol methyl ether	Oral LD50 (Rat): 11300 mg/kg

Chronic Toxicity: Ethylene glycol (EG): Repeated high oral exposure has caused kidney damage, neurological effects, degeneration of the liver and changes in blood chemistry and circulating blood cells in laboratory animals. Repeated overexposure has the potential to cause similar toxic effects in humans. EG causes developmental and reproductive effects at high dose levels in laboratory animals. The relevance of these findings to humans is uncertain. However, as a precaution, avoid exposure during pregnancy.

Listed Carcinogens:

Chemical Name	IARC	NTP	OSHA	ACGIH
Ethylene glycol	Not Listed	Not Listed	Not Listed	A4

IARC: 1 = Carcinogenic to Humans; 2A = Probably Carcinogenic to Humans; 2B = Possibly Carcinogenic to Humans; 3

= Not classifiable as to carcinogenicity to humans; 4 = Probably not carcinogenic to humans; Not listed = Not evaluated by IARC.

ACGIH: A1 = Confirmed Human Carcinogen; A2 = Suspected Human Carcinogen; A3 = Confirmed Animal Carcinogen; A4 = Not classifiable as a human carcinogen; A5 = Not suspected to be a human carcinogen; Not listed = Not evaluated by ACGIH.

Product Information

Acute Toxicity:

Test Results: No test data available for the product.

Other Acute: Causes severe skin and eye irritation. Harmful if swallowed. May cause respiratory tract irritation. May be harmful if absorbed through skin. May cause central nervous system effects. May cause damage to the kidneys.

Chronic Toxicity: May cause central nervous system effects. May cause damage to the liver and kidneys. Possible reproductive hazard - contains material that may cause adverse reproductive effects. A few cases of sensitization have been reported.

12	ECOLOGICAL INFORMATION
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Ecotoxicity: The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Specified Substance(s)

Chemical Name	Test
2-(2-methoxyethoxy)ethanol	LC50 (96 hour(s), Bluegill Sunfish): 7500 ppm
Diethylene glycol	EC50 (Daphnia): 49000 mg/l
Diethylene glycol	LC50 (Rainbow trout): >1000 mg/l
Diethylene glycol	LC50 (Fathead Minnow): 78000 mg/l
Diethylene glycol	LC50 (Goldfish): >5000 mg/l
Ethylene glycol	LC50 (96 hour(s), Rainbow trout): 18500 mg/l
Ethylene glycol	LC50 (24 hour(s), Goldfish): 5000 mg/l
Triethylene glycol	LC50 (96 hour(s), Bluegill Sunfish): > 10000 ppm
Triethylene glycol	LC50 (96 hour(s), Fathead Minnow): 70.2 g/l

Mobility: The product is water soluble and may spread in water systems.

Persistence and Degradability: No data available.

Bioaccumulation Potential: No data available.

Other Adverse Effects: No data available.

13	DISPOSAL CONSIDERATIONS
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General Information: Dispose in accordance with applicable federal, state, and local regulations.

Disposal Methods: Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

RCRA Information: Not regulated.

Container: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14	TRANSPORT INFORMATION
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DOT Not regulated.

TDG Not regulated.

IATA Not regulated.

IMDG Not regulated.

15	REGULATORY INFORMATION
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Canadian Controlled Products Regulations: This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information.

WHMIS Classification: D2A, D2B

Mexican Dangerous Statement: This product is dangerous according to Mexican regulations.

US Regulations

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Name	RQ
2-(2-butoxyethoxy)ethanol	-
Diethylene glycol monoethyl ether	-
Ethylene glycol	5000 lbs
Polyethylene glycol hexylether	-
2-(2-methoxyethoxy)ethanol	-
2-(2-propoxyethoxy)ethanol	-
Triethylene glycol monobutyl ether	-
Triethylene glycol ethyl ether	-
Triethylene glycol methyl ether	-

- : No reportable quantity.

SARA Title III

Section 302 Extremely Hazardous Substances (40 CFR 355, Appendix A): Not regulated.

Section 311/312 (40 CFR 370):

Acute (Immediate) Chronic (Delayed) Fire Reactive Pressure Generating

Section 313 Toxic Release Inventory (40 CFR 372):

Chemical Name	CAS-No.	Reporting threshold for other users	Reporting threshold for manufacturing and processing

Diethylene glycol monoethyl ether	111-90-0	10000 lbs	25000 lbs
2-(2-methoxyethoxy)ethanol	111-77-3	10000 lbs	25000 lbs
2-(2-propoxyethoxy)ethanol	6881-94-3	10000 lbs	25000 lbs
2-(2-butoxyethoxy)ethanol	112-34-5	10000 lbs	25000 lbs
Polyethylene glycol hexylether	112-59-4	10000 lbs	25000 lbs
Triethylene glycol monobutyl ether	143-22-6	10000 lbs	25000 lbs
Ethylene glycol	107-21-1	10000 lbs	25000 lbs
Triethylene glycol ethyl ether	112-50-5	10000 lbs	25000 lbs
Triethylene glycol methyl ether	112-35-6	10000 lbs	25000 lbs

For reporting purposes: the De Minimis Concentration for a toxic chemical in a mixture is 0.1% for carcinogens as defined in 29 CFR 1910.1200(d)(4) or 1% for others.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

Not regulated.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3): Not regulated.

Drug Enforcement Act: Not regulated.

TSCA

TSCA Section 4(a) Final Test Rules & Testing Consent Orders: Not regulated.

TSCA Section 5(a)(2) Final Significant New Use Rules (SNURs) (40CFR 721, Subpt. E): Not regulated.

TSCA Section 5(e) PMN-Substance Consent Orders: Not regulated.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.

State Regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): Not regulated.

Massachusetts Right-To-Know List: 2-(2-methoxyethoxy)ethanol; Ethylene glycol

Michigan Critical Materials List (Michigan Natural Resources and Environmental Protection Act (Act. 451 of 1994)): Not regulated.

Minnesota Hazardous Substances List: Diethylene glycol; Diethylene glycol monoethyl ether; Ethylene glycol; Polyethylene glycol; Triethylene glycol

New Jersey Right-To-Know List: 2-(2-butoxyethoxy)ethanol; 2-(2-methoxyethoxy)ethanol; 2-(2-propoxyethoxy)ethanol; Diethylene glycol monoethyl ether; Ethylene glycol; Polyethylene glycol hexylether; Triethylene glycol ethyl ether; Triethylene glycol methyl ether; Triethylene glycol monobutyl ether

Pennsylvania Right-To-Know List: 2-(2-butoxyethoxy)ethanol; 2-(2-methoxyethoxy)ethanol; 2-(2-propoxyethoxy)ethanol; Diethylene glycol; Diethylene glycol monoethyl ether; Ethylene glycol; Polyethylene glycol hexylether; Triethylene glycol; Triethylene glycol ethyl ether; Triethylene glycol

methyl ether; Triethylene glycol monobutyl ether

Rhode Island Right-To-Know List: Diethylene glycol; Ethylene glycol; Triethylene glycol

16	OTHER INFORMATION
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HAZARD RATINGS

	Health Hazard	Fire Hazard	Instability	Special Hazard
NFPA	2	1	0	0

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe
 NFPA Label colored diamond code: Blue - Health; Red - Flammability; Yellow - Instability; White - Special Hazards

	Health Hazard	Flammability	Physical Hazard	Personal Protection
HMIS	2*	1	0	X

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe * - Chronic Health Effect
 Personal Protection codes: X - Specialized Handling
 HMIS Label colored bar code: Blue - Health; Red - Flammability; Orange - Physical Hazards; White - Special

This MSDS contains revisions in the following section(s): 2, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 16.

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